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**Holmes et al.**

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(54) **SYSTEMS AND METHODS OF SAMPLE PROCESSING AND FLUID CONTROL IN A FLUIDIC SYSTEM**

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USPC ..... **422/500**; 422/68.1; 422/50

(58) **Field of Classification Search**  
USPC ..... 422/100, 68.1, 50, 99  
See application file for complete search history.

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1185 days.

This patent is subject to a terminal disclaimer.

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**Related U.S. Application Data**

(63) Continuation-in-part of application No. 11/389,410, filed on Mar. 24, 2006, now abandoned, and a continuation-in-part of application No. 11/388,415, filed on Mar. 24, 2006, and a continuation-in-part of application No. 11/388,823, filed on Mar. 24, 2006, and a continuation-in-part of application No. 11/388,824, filed on Mar. 24, 2006, and a continuation-in-part of application No. 11/388,723,

(57) **ABSTRACT**

This invention is in the field of medical devices. Specifically, the present invention provides portable medical devices that allow real-time detection of analytes from a biological fluid. The methods and devices are particularly useful for providing point-of-care testing for a variety of medical applications.

**53 Claims, 46 Drawing Sheets**

